

The Butte Superfund Health Study & Biomonitoring Working Group was formed to help ensure that Superfund mandated remediation is fully protecting the health and well-being of Butte residents. The membership in the working group includes technical experts, agency staff, healthcare professionals, and independent Butte citizens. The Working Group convenes every five years in response to an EPA directive requiring the development of health studies to assess the effectiveness of the Superfund-mandated remedy in making the greater Butte area a clean and healthful place to live.

**Commented [SA1]:** Is the purpose of this to announce in lay terms the technical critique/letter to the editor.

**Commented [SA2]:** The outreach aspect of this effort needs to be heavily emphasized. The 2 public meetings can be mentioned.

Last fall, while the Working Group was in the midst of developing its current five-year assessment, a scientific paper was published in a peer-reviewed journal that presented an analysis of adverse health effects, especially cancer, in Butte and Anaconda. ~~T~~ which the article suggested ~~concluded that certain health impacts~~ could be attributed to exposure to heavy metals associated with past mining activities. Shortly after the article's publication, one of its authors, Professor Suzanne McDermott, visited Montana Tech to summarize her findings. ~~She argued at that event~~ claimed that deaths from cancer and other diseases are higher in Deer Lodge and Silver Bow Counties than in the rest of Montana. ~~Dr. McDermott also asserted, and that the elevated death rates her research identified are associated with heavy metal exposures.~~

This new information made big news in Butte, ~~increased levels of public concern and anxiety, and causing many to question the competence and even the credibility of the Working Group Superfund cleanup.~~ In conjunction with Montana's Department of Public Health and Human Services (DPHHS), the Working Group's research had previously shown no statistical difference between Butte's cancer rates and those from other counties in Montana. Specifically DPHHS's analyses of cancer mortality and incidence in Butte Silver Bow County did not find elevated cancer incidence over a 35 year period from 1981 through 2016.

**Commented [SA3]:** I don't think there was any collaborative involvement in this prior study. Also, it should be qualified to indicate select cancers studied based on the kind of data available at the time. Other limitations like county-wide data should also be recognized, among standard limitations. Let's not make equal and opposite mistakes a McDermott.

Legitimate professional epidemiological analyses like those from McDermott and DPHHS can achieve significantly different conclusions depending on the evidence they consider, the methodologies they adopt, and the scope and range of the data they select. The members of the Working Group reviewed McDermott's article to try to understand the source of the radically different outcomes, and several differences stand out.

**Commented [SA4]:** Excellent! However, it's a bit like an academic paper to have the thesis come after an introduction. Perhaps the attention grabber needs to be in the opening sentence and title?!

It makes a huge difference in the health-related data set being analyzed if it includes just deaths from cancer, or deaths in which cancer may be present but wasn't the cause of death; if it counts cancer incidence (annual diagnoses of cancer) with or without cancer mortality (annual deaths from cancer); and so on. DPHHS' analysis .... While McDermott's study ended up counting .....

**Commented [WBM5]:** Laura fill in...the difference

**Commented [SA6R5]:** Yes, this paragraph needs to present differences and research norms in lay language.

Because the heart of the Working Group's mandate and mission is to ensure that Superfund remedies are protecting residents from the kinds of health hazards McDermott's study says exceed normal expectations, the members of the group took very seriously the study's assertion that heavy metals are the cause of the statistically observed excess cancers. Upon review, discussion, and reflection, the Group remains unconvinced by McDermott's assertion of cause-effect between Superfund-related heavy metals and the study's reported excessive cancer rates.

**Commented [SA7]:** Perhaps we can take a softer tone by identifying a few things we do agree with?

**Commented [SA8]:** This seems too strong, as we are still researching it ourselves. I think critique needs to stay focused on her methods.

First, when Dr. McDermott's study attributes Butte's elevated cancer rates to mining-related heavy metals exposure, it ignores the fact that remedial actions have dramatically reduced exposures over the past 30 years, to levels approaching what residents of other Montana communities experience. That steady pace of reduced exposures through removals, encapsulation, and treatment makes McDermott's

attribution of excessive cancers to heavy metals exposure unpersuasive. The data the Working Group has developed shows that childhood blood-lead levels have dropped dramatically; residential soils showing heavy metals have been remediated; and attics with arsenic or lead present have been cleaned.

**Commented [SA9]:** Be more specific to the first 5-year review.

Furthermore, the Working Group's concern about identifying and addressing threats to Butte residents' health incorporates the Group's awareness of the Butte Silver Bow Health Department's participation in a three-year health-needs study cycle, and the results of the 2017 assessment suggest that more likely candidates for higher cancer incidence found in Butte might be diet, exercise, smoking, alcohol, and stress, to name just a few. One of the Group's main concerns is that inappropriate attribution of the reported elevated mortality rates to Superfund-related exposures could divert attention from the clearly identified pressing health concerns in the community.

**Commented [SA10]:** Access to health care is maybe first and foremost on the list? State that while incident rates are similar to other counties, mortality rates are higher because...

The Butte Superfund Health Study & Biomonitoring Working Group appreciates the challenges presented by independent research such as Dr. McDermott's that presents data analyses that vary from the Group's analyses. Addressing these challenges while focusing on the ultimate goal—ongoing improvements in the health and well-being of Butte residents—makes for better science and better outcomes for all. The Working Group continues to conduct investigations in a collaborative manner. Attendance at Technical Working Group Meeting and/or public meetings are encouraged. For more information, please contact....